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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Bruno Bassi

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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,950	Applicant(s) BASSI, BRUNO	
	Examiner Kevin P. Kerns	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2008 and 25 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28-40 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voisin (US 3,874,440) in view of Chandley et al. (US 5,271,451).

As to claims 28-31, Voisin discloses a casting procedure comprising the steps of providing a mold with open risers (18) in the lower mold component for feeding the casting and attracting any slag, fumes, and gases in the molten metal; forcing the molten metal into the mold and the riser from a furnace (8) situated below the mold, with the upper part of the mold using a metal cope and including sand cores 5 to define the shape of the casting (Figures 1 and 3); and sealing the top of the mold using a plate (4), which prevents the molten metal from overflowing and which is connected to a vacuum device (abstract; column 2, lines 62-68; column 3, lines 1-19; and Figures 1 and 3).

As to claims 32, 33, 44, and 45, Voisin discloses a casting machine in combination with a mold, with the casting machine further comprising a bottom and an upper part containing sand cores 5, a lower main structure holding a furnace (8) from which inlets extend to the mold for feeding molten metal 9 (column 3, lines 7-15), an upper main structure resting on the lower structure and being removable therefrom, a

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base plate (6) on the upper structure, a cooled plate (6 and 6a), and a plate holder (7) fastened to the ejector plate (17) that is vertically movable between raised and lowered positions, such that the cooled plate (6) is fitted with an opening for passage of the ejector plate (see column 2, lines 62-68; column 3, lines 1-68; column 4, lines 1-33; and Figures 1 and 3).

As to claims 46-48, the upper plate (4) prevents metal from overflowing and is connected to a vacuum device provided with filtered channels, or strainers (column 2, lines 62-68; column 3, lines 1-19; column 4, lines 20-33; and Figures 1 and 3).

As to claims 34-40, Voisin discloses slides which run along the plate holder 7 and slots to receive the slides, two side molds, with one side of the mold made in at least two overlapping parts, and the lower main structure is removable from the upper structure. Voison fails to specifically teach quick lock means and “mushrooms” (“headed studs”, as amended) moved in the slots to lock the ejector plate and plate holder. Voison also fails to specifically teach sides that are moved by hydraulic cylinders. However, it would have been obvious to one of ordinary skill in the art at the time the applicant’s invention was made to have quick lock means, having “mushrooms” (“headed studs”, as amended) in the slot as stud pins to lock the two plates in a position for molding/casting, as well as having hydraulic cylinders to move the two sides, since the ejector plates are movable and therefore would need a locking means to hold the ejector plates together. In addition, the side molds would be obvious to provide hydraulic cylinders to move them together and apart, since the metal molds are heavy and at high temperatures for handling purposes both during and after casting.

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Although Voisin discloses that the mold has open feeding risers, Voisin does not disclose that the open feeding risers are situated on top of the mold (see independent claims 28, 32, and 45).

However, Chandley et al. disclose a countergravity casting apparatus and method for casting of molten metal (abstract; column 2, lines 31-43; column 4, lines 58-68; column 6, lines 8-28; and Figures 1-4), in which the mold 10 is provided with attached open feeding risers on top of the mold (riser forming members 22 connected to the top of the mold 10) to hold extra molten metal while the mold is being filled, such that the open feeding risers on top of the mold are advantageous for providing a source of additional melt for supply to the isolated and/or enlarged region during solidification of the melt in the mold cavity to accommodate melt shrinkage (abstract; column 2, lines 31-43; and Figures 1 and 3).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the casting procedure and casting machine in combination with a mold, as disclosed by Voisin, by providing the open feeding risers on top of the mold, as taught by Chandley et al., in order to provide a source of additional melt for supply to the isolated and/or enlarged region during solidification of the melt in the mold cavity to accommodate melt shrinkage (Chandley et al.; abstract; and column 2, lines 31-43).

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3. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voisin (US 3,874,440) in view of Chandley et al. (US 5,271,451), as applied to claims 28 and 32 above, and further in view of Farkas (US 6,499,529).

Voisin (in view of Chandley et al.) disclose and/or suggest the features of above claims 28 and 32. Neither Voisin nor Chandley et al. teaches a vacuum chamber (provided as sealing means) communicating with channels on the metal cope and wherein the mold is tiltable.

However, Farkas discloses a rotatable mold having a vacuum chamber (provided as sealing means) connecting to the core (22) and to remove any gas in the die cavity for the purpose of reducing gas entrapment (abstract; column 4, lines 45-49; column 7, lines 17-27; and Figures 2 and 3).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the casting procedure and casting machine in combination with a mold, as disclosed by Voisin, by providing the open feeding risers on top of the mold, as taught by Chandley et al., in order to provide a source of additional melt for supply to the isolated and/or enlarged region during solidification of the melt in the mold cavity to accommodate melt shrinkage, and by further using a rotatable mold having a vacuum chamber (provided as sealing means) connecting to the core, as disclosed by Farkas, to remove any gas in the die cavity for the purpose of reducing gas entrapment (Farkas; column 4, lines 45-49).

Response to Arguments

4. The examiner acknowledges the applicant's amendments received by the USPTO on September 19, 2008 and November 25, 2008. The amendments overcome the prior objections to the abstract and claims, as well as the prior 35 USC 112, 2nd paragraph and 35 USC 102(b) rejections. The applicant has cancelled claims 49 and 50. Claims 28-48 are currently under consideration in the application.

5. Applicant's arguments with respect to claims 28-48 have been considered but are moot in view of the new ground(s) of rejection.

With regard to the applicant's remarks/arguments on pages 8 and 9 of the response dated September 19, 2008, it is noted that the teachings of the newly applied Chandley et al. reference addresses the applicant's major argument that neither Voisin nor Farkas discloses or suggests open feeding risers on top of the mold. Chandley et al. disclose that such open feeding risers on the mold are advantageous for providing a source of additional melt for supply to the isolated and/or enlarged region during solidification of the melt in the mold cavity to accommodate melt shrinkage. Regarding the applicant's statement addressing claim 41 (on page 9 of the remarks/arguments section), it is noted that Farkas discloses a rotatable mold 10 with a tilting arm, in the form of the attached drive means (motor 50 mounted on frame 40) for causing rotation of a container 20 surrounding the mold 10. As mentioned in the response to arguments section of the previous Office Action, Farkas was introduced to teach removal of gas and reducing gas entrapment in a rotatable mold. In view of the above 35 USC 103(a)

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rejections that include the newly applied Chandley et al. reference, as provided in response to the applicant's amendments to the claims, claims 28-48 remain rejected.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns
Primary Examiner
Art Unit 1793

/Kevin P. Kerns/
Primary Examiner, Art Unit 1793
February 5, 2009